KONDRAS, Z.

"Workers' inventiveness in 1953"
Chemik, Katowice, Vol 7, No 3, Mar. 1954, p. 88

SO: Eastern European Accessions List, Vol 3, No 10, Oct 1954, Lib. of Congress

KONDRAS, Z.

"Inventiveness Movement in Enterprises of the Ministry of the Chemical Industry." P. 122,
(CHEMIK, Vol. 7, No. 4, Apr. 1954, Katowice, Poland.)

SO: Monthly List of East European Accessions,(EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

KONDAS, Z.

"Report on the development of the industrial management movement in the first quarter of 1954."
Chemik, Katowice, Vol 7, No 6, June 1954, p. 183

SO: Eastern European Accessions List, Vol 3, No 10, Oct 1954, Lib. of Congress

KONDRAS, Z.

Analysis of achievements in 1954. p. 122.
CHEMIK, Katowice, Vol. 8, no. 4, Apr. 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, no. 10, Oct. 1955, Uncl.

KONDRAS, J.

Development of workers' inventiveness. p.84. ACTA PHYSICA POLONICA Warszawa Vol. 9, No. 3, Mar. 1956.

East European Accessions List (EEAL) Library of Congress Vol. 5, No. 11, August 1956.

KONDRAS, Zdzislaw

New Polish patents in chemistry. Przem chem 41 no.2:105-106 F '62.

KONDRAS, Z.

New Polish patents in chemistry. Przem chem 41 no.4:217-219 Ap '62.

KONDRAS, Z.

New Polish patents. Przem chem 41 no.6:334-335 Je '62.

KONDRAS, Z.

New Polish patents. Przem chem 41 no.7:398-399 Jl '62.

KONDRAS, Z.

New Polish patents. Przem chem 41 no.9:532-533 S '62.

KONDRAS, Zdzislaw

A new appreciation of inventiveness of employees.
Chemik 14 no.9:339-340 S '61.

1. Ministerstwo Przemyslu Chemicznego, Warszawa.

KONDRAS, Zdzislaw

Survey of inventions. Chemik 15 no.1:18-20 Ja '62.

1. Ministerstwo Przemysłu Chemicznego, Warszawa.

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The inventor and the national economic interest. Chemik 15 no.2: 62-66 F '62.

1. Ministerstwo Przemyslu Chemicznego, Warszawa.

KONDRAS, Z.

Polish patents. Przem chem 42 no.6:328-329 Je '63.

CA KONDRASHCHUK, L.

Specimens of monocarboxycellulose. Z. A. Rogovin, L. Kondrashchuk, and R. Malakhov. *Zhur. Prikład. Khim.* (J. Applied Chem.) **23**, 418-27(1950); cf. *C.A.* **44**, 8255i.—Modified cellulose prepd. by action of NO_2 on cellulose (so called monocarboxycellulose) contains 2-5% CO_2H groups and possesses low viscosity in cuprammonium solns. corresponding to polymerization state of only 80–100 units. When NO_2 oxidation introduces 3-5% CO_2H groups into cellulose the strength of cellulose or cellulose hydrate is slightly lowered, or may be actually slightly raised. Hence the low state of polymerization is illusory and is probably caused by cleavage of the glucoside links in the alk. soln. (cuprammonium) during viscosity detn. Attempts to measure viscosity in H_3PO_4 failed as the products were insol. at the requisite low temp. Exposure of products to hot H_2O led to fairly rapid mech. decompn. and expts. with woven cloth treated with NO_2 while confirming little if any change in mech. properties (a slight increase in strength usually was observed) showed that abs. dry cloth is not necessary, if destructive effects of the treatment are to be prevented; specimens with 3-12% H_2O showed no strength loss. The results are explained by better penetrability of moist fibers to NO_2. The only mech. property which suffers significantly is the crease resistance to repeated flex which declines to 1% of original value. The effect is partially explained by increased polar attraction of CO_2H groups located along the mol. chains. The CO_2H groups, located as they are at the 6-C atom, sharply decrease the resistance to alkalies, acids, and water at elevated temp. and after brief boiling the products are turned to powder. Specimens with similar (2-5%) CO_2H content but located at 2- and 3-C atoms, made by further oxidation of "dialdehydrocellulose" with chlorites which yields "dicarboxycellulose" in which the pyranose ring is open, the mech. properties are similar to those of "monocarboxycellulose" but the product is mechanically stable on hydrolytic treatment. Percale oxidized by alk. hypochlorite gives products of intermediate character since the oxidation is not specifically localized in this case. G. M. Kosolapoff

KHAMSKIY, Ye.V.; KONDRASHCHENKO, T.A.

Effect of inorganic substances on the hygroscopicity of ammonium nitrate. Zhur. prikl. khim. 36 no.12:2631-2635 D'63.
(MIRA 17:2)

KAPUSTIN, B.N., glav. inzh.; GVOZDEV, T.T., glav. inzh.; GRIGOROVICH, V.D., inzh.; KONDRASHENKO, A.A., inzh.; ABADEYEV, Yu.A., inzh.; RYADNOV, A.A., inzh.; YEGORYCHEV, V.P., inzh.; SHMEL'KIN, B.A., inzh.; MARSHUTIN, S.F., inzh.; KHODZHABARONOV, K.G., inzh.; FEDOSOVA, Ye.M., tekhnik; OSIN, V.I., tekhnik; SEMENOVA, Ye.P., tekhnik; AVSARAGOVA, G.A., tekhnik; PASHKEYEV, D.A., inzh.; KAPUSTIN, V.N., inzh.; NAGOROV, L.A., inzh.; IONOV, I.T., inzh.; KOPEYKINA, L.M., inzh.; TELEPNEVA, T.P., tekhnik; CHAKURIN, Zh.G., tekhnik

[Album of the mechanization of labor-consuming processes in stockbreeding] Al'bom mekhanizatsii trudoemkikh protsessov v zhivotnovodstve. Moskva, Izd-vo Giprosel'khoza. No.4.[Equipment and supplies for the mechanization of labor-consuming processes on livestock farms] Oborudovanie i inventar' dlia mekhanizatsii trudoemkikh protsessov na zhivotnovodcheskikh fermakh. 1959 [cover: 1961. 229] p. (MIRA 15:7)

1. Gosudarstvennyy institut po proyektirovaniyu sel'skokhozyaystvennykh sooruzheniy (for Kapustin, Grigorovich, Kondrashenko, Abadeyev, Ryadnov, Yegorychev, Shmel'kin, Marshutin, Khodzhabaronov, Fedosova, Osin, Semenova, Avsaragova).

(Continued on next card)

KAPUSTIN, B.N.---(continued). Card 2.

2. Respublikanskiy gosudarstvennyy institut po proyektirovaniyu sovkhoznogo stroitel'stva (for Gvozdev, Pashkeyev, Kapustin, V.N., Nagorov, Ionov, Kopeykina, Telepneva, Chakurin).

(Agricultural machinery)

KONDRASHENKO, A.K.

AUTHOR: Bogomolov, V.N., Zaydman, Ya.D. and Kondrashenko, A.K. 99-58-6-2/11
Engineers

TITLE: The Lining of Canals With Concrete and Reinforced Concrete (Oblitsovka kanalov betonom i zhelezobetonom)

PERIODICAL: Gidrotekhnika i Melioratsiya, 1958, Nr 6, pp 7-20 (USSR)

ABSTRACT: In the Trans-Caucasian Soviet Republics (Azerbaydzhan, Armenian and Georgian SSR), several tests have been carried out on the concreting of irrigation canals. The North Donets-Donbass Canal in the Ukrainian SSR is now being lined with reinforced concrete. Considering the various conditions of irrigation systems and the peculiarities of prefabricated canal lining structures (especially the extent of seams, the great demand for fitting steel, increased stability, etc) the construction of linings of monolithic and reinforced concrete proved to be the best solution for concreting main canals. The type of canal lining used in the main canal of the Apsheron irrigation system, having longitudinal seams sealed with tar-coated planks, did not prove to be as reliable as the anti-filter type construction. The construction of marker-type linings (Arzni-Shamiram irrigation system), without longitu-

Card 1/2

The Lining of Canals With Concrete and Reinforced Concrete 99-58-6-12/11

dinal seams and reliable sealings of all diametrical seams, is a new development which has not yet been sufficiently tested. In the Upper Samgori irrigation system, studied in 1956-57 by scientists of the Georgian Water Engineering and Reclamation Institute, single-layer concrete linings (type 4) proved to be excellent for water-resistant soils while double-layer linings (type 2, 3, 3a) were found to be excellent for non-water-resistant soils subject to deformations. The construction of linings in the North Donets-Donbass Canal is characterized by an innovation - the sealing of the seams with rubber, and especially the use of profile rubber in monolithic linings. In order to apply labor-saving measures in the future construction of monolithic linings, and to improve their structure, it is absolutely necessary to build machines for complex mechanization of the process of lining with monolithic concrete and reinforced concrete. At the same time research work is to be continued on more efficient and economical linings made up of concrete and reinforced concrete tending to apply pre-stressed fittings. There are 19 photos, 2 figures and 4 tables.

AVAILABLE: Library of Congress
Card 2/2 1. Canals-Maintenance 2. Concrete-Applications

99-58-7-2/10

AUTHOR: Bogomolov, V.N., Zaydman, Ya.D. and Kondrashenko, A.K., Engineers

TITLE: The Lining of Distribution Canals of Irrigation Systems (Oblitsovka raspredelitel'nykh kanalov orositel'nykh sistem)

PERIODICAL: Gidrotekhnika i melioratsiya, 1958, Nr 7, pp 5-15 (USSR)

ABSTRACT: In October and November 1957, the authors of this article studied the canal linings of the following irrigation systems: Apsheron (Azerbaydzhan SSR); Arzni-Shamiramskaya (Armenian SSR) and Verkhne-Samgorskaya (Georgian SSR); and arrived at the following conclusions: The lining of canals with small, lightweight, prefabricated plates (Apsheron irrigation system) is not an effective measure against filtration. Such a structure has a great number of longitudinal and diametrical seams, and the laying of the liner plates represents a problem. The linings of canals of the Verkhne-Samgorskaya irrigation system consisting of prefabricated concrete troughs of a semicircular profile (0.7 m in length), having a great number of seams and borders of monolithic concrete, are subject to deformations and consequently the loss of water from these canals is considerable. The construction of linings consisting of prefabricated concrete

Card 1/2

KONDRASHENKO, V.K.; SUKHININ, V.N.

Use of cutting machines in tobacco processing. Izv.vys.ucheb. zav.; pishch.tekh. no.1:117-122 '64. (MIRA 17:4)

1. Krasnodarskiy politekhnicheskiy institut, kafedra tekhnologii metallov i kafedra tekhnologii mashinostroyeniya.

KONDRASHENKO V. N.

Emdina S. M. and Kondrashenko V. N., "Speed Regulation in Welding Ring-shaped Joints in Articles of Complex Form," Traktaty Sektsii po nauchnoy razrabotke problem elektrosvarki i elektrotermii, Moscow, Academy of Sciences, USSR, 1953, Pages 123-126, 3 figures.

EMDINA, S. M.; KONDRASHENKO, V. T. (Kaliningrad)

Mechanism of the therapeutic action of oxygen used subcutaneously. Klin. med. no.9:82-86 '61. (MIRA 15:6)

(OXYGEN—THERAPEUTIC USE)

129-58-8-8/16

AUTHORS: Novikov, V. N., Tutov, I. Ye., Candidates of Technical Science and Kondrashev, A. I., Engineer

TITLE: Local Heat Treatment of Weld Joints Manufactured by Electric Slag Welding (Mestnaya termicheskaya obrabotka svarnykh soyedineniy, vypolnennykh elektroshlakovoy svarkoy)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 8, pp 38-43 (USSR)

ABSTRACT: The single-pass electric slag welding of 100-400 mm thick components developed by the imeni Ye. O. Paton Welding Institute (Institut svarki imeni Ye. O. Patona) is widely used in Soviet industry. However, the heat treatment of large components (normalisation annealing and high temperature tempering), which has to be carried out if they are to be highly stressed in service, involves serious technological difficulties. TsNIITMASh and NKMZ investigated the problems involved in the process of electro-heat treatment of welded joints of very large (100 ton) sheets of the Steel 22K. The sheets were butt welded with a wire electrode using a slag method. 50 c.p.s. current was used which ensures a relatively

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Local Heat Treatment of Weld Joints Manufactured by Electric Slag Welding

low speed and a high degree of uniformity of heating the plate along the cross section. The width of the zone which became heated to a temperature above the Ac_3 point was 2.5 times as high as the width of the weld; beyond this zone the heating was effected as a result of the thermal conductivity of the material. The induction equipment ensured local heating of the weld by means of a group of flat single-phase multi-turn 50 c.p.s. inductors which were connected into a three-phase system; the heating was effected simultaneously from both sides along the entire length of the weld. The inductors are fitted into two revolving frames and are pressed onto the plate by means of pneumatic or hydraulic devices. The induction equipment had a rating of 700 kVA. In Fig.1 the changes are graphed of the mechanical properties of the Steel 22K as a function of the heating temperature on the basis of experiments made by heating in the furnace at temperatures of 650 to 1050°C with a holding time of four hours at each temperature. The temperature range 700-800°C proved to be the most dangerous one; the

Local Heat Treatment of Weld Joints Manufactured by Electric Slag Welding

yield point of the steel is reduced by such a heating and subsequent tempering at 600°C to 4-6 kg/mm^2. The best combination of mechanical properties is obtained in the case of normalisation annealing at 870 to 950°C. Since this steel is not prone to over-heating, induction heating in the weld up to 1050°C is considered admissible. Relaxation tests of the normalised steel showed that tempering at 650°C during 1 to 2 hours conserves the required mechanical properties of the normalised steel whilst eliminating almost entirely the residual stresses. The applied control equipment enabled achieving a full equalisation of the temperature throughout the entire thickness of the plate along the weld seam. The described investigations of the seam metal and the thermally affected zone allows the following conclusions to be made:

1) Normalisation annealing restores the over-heated coarse crystalline structure of the weld obtained during electric slag welding which leads to an improvement of the ductility of the steel. Irrespective of the method

of heating after normalisation and tempering, the metal of the weld and of the near-weld zone will have a strength and mechanical characteristics equal to that of the base metal.
2) The most rational type of heating for normalisation annealing of the metal in the case of welds of large size plates is local induction heating by 50 c.p.s. current.
3) Local electro-thermal treatment of welded plates of the Steel 22K containing at least 0.22% carbon ensures obtaining mechanical properties which are in accordance with the requirements to be met by this sheet material.

The described new technology of heat treatment has been successfully introduced and is recommended for weld joints of tubes and steam pipings, high pressure vessels and various other components. If it is necessary to eliminate more fully the residual stresses in the welded component by high temperature tempering in the case of heating in furnaces, application of local electro-thermal treatment (normalisation) is rational and efficient for welds produced by electric slag welding since it excludes

Local Heat Treatment of Weld Joints Manufactured by Electric Slag Welding

warping and the necessity of straightening of the welded components as is necessary during heating to high temperatures inside furnaces.
There are 5 figures, 1 table.

ASSOCIATIONS: TsNIITMASh and NKMZ

1. Welded joints--Heat treatment 2. Welded joints--Properties
3. Welded joints--Test results

Card 5/5

BRAUN, M.P., doktor tekhn.nauk; VIHOKUR, B.B., inzh.; KONDRASHEV, A.I., inzh.

Effect of niobium on the temper brittleness of chromium-nickel steel. Izv.vys.ucheb.zav.; chern.met. no.8:113-118 Ag '58. (MIRA 11:11)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk i Novo-Kramatorskiy mashinostroitel'nyy zavod.
(Chromium-nickel steel) (Niobium) (Steel--Brittleness)

BRAUN, M.P., prof., doktor tekhn.nauk; VINOKUR, B.B., inzh.; KONDRASHEV, A.I., inzh.

Mechanical properties of chromium-nickel steel with a niobium alloy. Izv.vys.ucheb.zav.; chern.met. no.10:119-124 O '58. (MIRA 11:12)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk i Novo-Kramatorskiy mashinostroitel'nyy zavod.
(Chromium-nickel steel--Testing) (Niobium)

BRAUN, M.P., doktor tekhn. nauk; VINOKUR, B.B., inzh.; KONDRASHEV, A.I., inzh.; ZASLAVSKIY, S.Sh., otv. za vyp.

[Properties of chromium-nickel steel with an addition of niobium] Svoistva khromonikelevoi stali, legirovannoi niobiem. Kiev, Gos.nauchno-tekhn. kom-t Soveta Ministrov USSR, 1959. 14 p. (MIRA 16:7)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk (for Braun, Vinokur). 2. Novo-Kramatorskiy mashinostroitel'nyy zavod im. Stalina (for Kondrashev).
(Chromium-nickel steel)

KONDRASHEV, A.I.

SOV/4284
PHASE I BOOK EXPLOITATION

Braun, Mikhail Petrovich, Bertol'd Bentsionovich Vinokur, Arkadiy Ivanovich Kondrashev, and Yekaterina Yevdokimovna Maystrenko

Mekhanicheskiye svoystva, teploustoychivost' i termicheskaya obrabotka legirovannoy stali (Mechanical Properties, Heat Resistance, and Heat Treatment of Alloy Steel) Kiyev, AN Ukrainskoy SSR, 1959. 190 p. 3,000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut liteynogo proizvodstva.

Resp. Ed.: A.A. Gorshkov, Corresponding Member, Academy of Sciences Ukrainskaya SSR; Ed.: T.K. Remennik; Tech. Ed.: R.A. Buniy.

PURPOSE: The book is intended for technical personnel in machine-building enterprises. It will also be of interest to members of scientific research organizations.

COVERAGE: The book presents and analyzes the results of studies of the mechanical properties of steels alloyed with various elements. Two groups of alloyed steels (with Mn, Cr, Ni, Si - as basic constituents, and with Ti, or V, or W, or Mo, or Ni, or their combinations added) are investigated. The compositions of steels in both groups are alike. The only essential difference between steels

Card 1/4

BRAUN, M.P., doktor tekhn.nauk, prof.; VINOKUR, B.B., inzh.; KONDRASHEV, A.I., inzh.; MAYSTRENKO, B.Ye., inzh.

Properties of steels for large cross-section parts. Izv.vys. ucheb.zav.; chern.met. 2 no.6:67-73 Je '59. (MIRA 13:1)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk i Novo-Kramatorskiy mashinostroitel'nyy zavod. Rekomendovano kafedroy tekhnologii metallov i metallovedeniya Ukrainskoy Akademii sel'skokhozyaystvennykh nauk.
(Steel alloys--Testing)

BRAUN, M.P., prof.; KOSTYRKO, O.S.; DOBRYANSKAYA, Ye.P.; KONDRASHEV, A.I.

Efficient heat treatment process for hot rolling mill rolls.
Izv.vys.ucheb.zav.; chern.met. 2 no.8:105-112 Ag '59.
(MIRA 13:4)

1. Ukrainskaya Akademiya sel'skokhozyaystvennykh nauk.
(Rolls(Iron mills)) (Steel--Heat treatment)

KONDRASHEV, A.I.; KAMALOV, V.A.; GURZHIYENKO, K.F.

Improving the heat treatment of rolls used in cold rolling. Sbor. Novo-Kram.mashinostroi.zav. no.5:70-83 '59. (MIRA 16:12)

KONDRASHEV, A.I., inzh.; GURZHIYENKO, K.F.; YEGOROVA, Ye.P.

Efficient heat treatment of rolls used in hot rolling and made of 55Kh and 60KhG steels. Sbor.Novo-Kram.masninostroi. zav. no.5:62-69 '59. (MIRA 16:12)

S/137/60/000/012/007/041
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 12, pp. 107-108, # 28881

AUTHOR: Kondrashev, A.I.

TITLE: Measures to Prevent Flake Formation in Large-Size Forgings Made of Basic Open-Hearth Steel

PERIODICAL: Tr. Nauchno-tekhn. o-va chern. metallurgii, 1959, Vol. 15, pp. 113-121

TEXT: It is experimentally proved that flakes are formed during cooling of forgings after the forging process. An analysis of various annealing and isothermal annealing conditions shows that according to the degree of flake sensitivity the steel grades can be divided into two groups. For group No. 1 conditions of isothermal annealing were developed using single-stage cooling, for group No. 2 two-stage supercooling was employed. M.Ts.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

18.7100

77595
SOV/129-60-2-8/13

AUTHORS: Astaf'yev, A. A., Minasaryan, A. A. (Candidates of Technical Sciences), Kondrashev, A. I. (Engineer)

TITLE: Cooling Rates From Tempering Temperatures for Forgings

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, Nr 2, pp 42-47 (USSR)

ABSTRACT: When heat-treating forgings for critical applications, slow cooling rates from tempering temperatures were used to obtain minimal residual stresses. However, such rates prolong the production cycle and decrease productivity of heat treatment shops. Therefore, it was necessary to determine the optimal cooling rates providing minimal residual stresses and high mechanical properties for such forgings. Specimens 75 mm in diam, 190 mm long, were prepared from steel 34KhN2M containing C 0.37; Mn 0.42; Si 0.36; Ni 2.44; Cr 0.99; Mo 0.25%. Preliminary heat treatment

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Cooling Rates From Tempering Temperatures for Forgings

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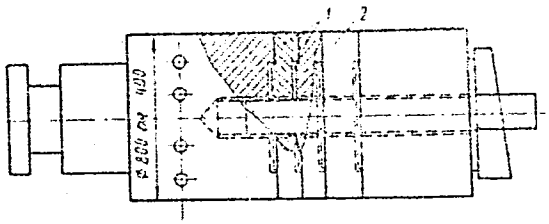

Fig. 1. Fixture for heat treatment of discs. Discs for determination of: (1) residual stresses; (2) mechanical properties.

As a result of experiments, the following conclusions have been made: (1) Cooling of large forgings after tempering in air or in unheated pits leads to increased residual stresses. (2) Optimal cooling rates after tempering for critical application forgings are:

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cooling with the furnace to 400° C and subsequent air cooling. Such rates decrease duration of cooling, as compared with complete cooling with the furnace, to 1/3-1/4, and result in permissible residual stresses up to 4 kg/mm^2 (see Fig. 4). These rates are used for large forgings at Novo-Kramatorskiy Machine Building Plant in Kramatorsk (Novo-Kramatorskiy mashinostroitel'nyy zavod).

Cooling Rates From Tempering Temperatures for Forgings

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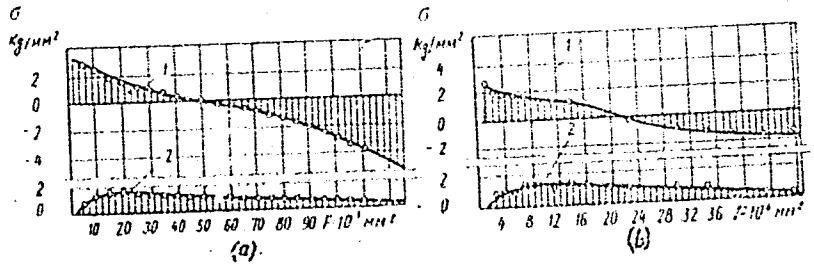

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Caption for Fig. 4.

Fig. 4. Residual stresses in disc after cooling with furnace from tempering temperature to 400° C and subsequent air cooling. (6) Residual stress, kg/mm^2; (f) area, mm^2; (a) steel 40 Kh, diam 400 mm; (b) steel 40KhN, diam 300 mm; (1) tangential stress; (2) radial stress.

(3) For forgings made from steels inclined to temper brittleness the following interrupted cooling can be used: air cooling from tempering temperature to 400-450° C, holding in the furnace at this temperature, and subsequent air cooling. This method results in comparatively high impact values (see Fig. 5) although residual stresses increase to 5-7 kg/mm^2.

Cooling Rates From Tempering Temperatures for Forgings

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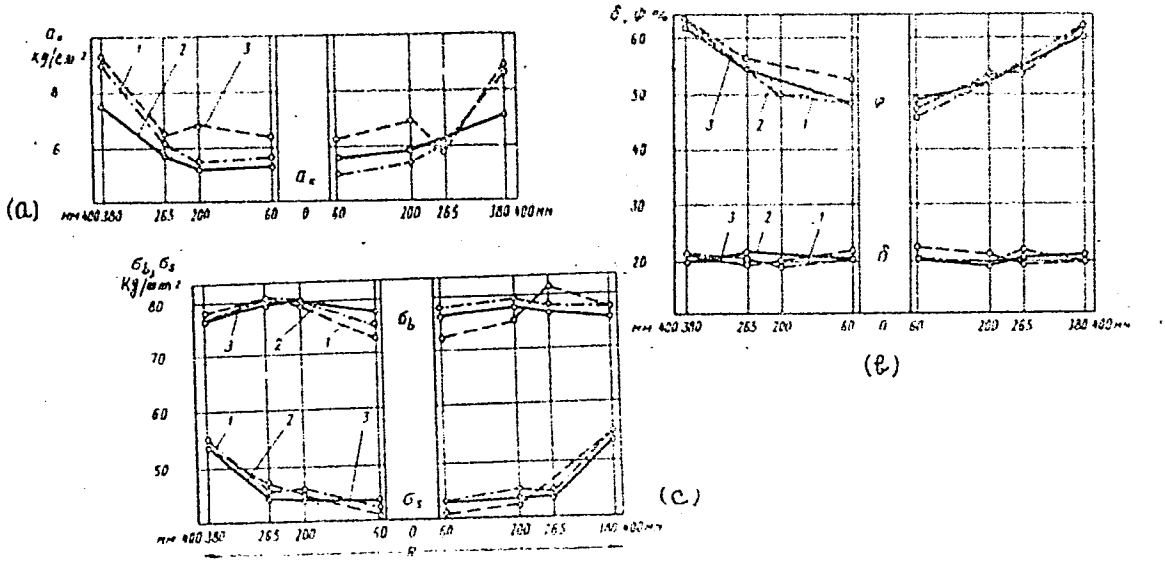

Card 8/9 See Card 9/9 for Caption to Fig. 5.

Fig. 5. Mechanical properties of 800 mm diam steel 40 KhN discs after various cooling rates from tempering temperature. (1) Unheated pit; (2) with furnace to 400° C, then in air; (3) air cooling to 450° C, holding in the furnace at 450° C, and air cooling. (a_k) impact strength; (δ) elongation, %; (ψ) reduction of area, %; (σ_b) tensile strength, kg/mm^2; (σ_s) yield point, kg/mm^2.

There are 5 figures; 3 tables; and 1 Soviet reference.

ASSOCIATION: Central Scientific Research Institute of Technology and Machinery (TsNIITMASh)

18.7100

77596
SOV/129-60-2-9/13

AUTHORS: Braun, M. P. (Professor, Doctor of Technical Sciences), Kostyrko, O. S., Dobryanskaya, Ye. P., Kondrashev, A. I. (Engineers)

TITLE: Rational Heat Treatment Rates for Hot Rolling Rolls

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, Nr 2, pp 48-52 (USSR)

ABSTRACT: At Novo-Kramatorskiy Plant (Novo-Kramatorskiy zavod) in Kramatorsk protracted heat treatment of hot rolling rolls failed to remove flakes. In order to study the effect of cooling rates on flake formation after forging 55Kh-steel specimens, the authors tested four different heat treatment methods (see Fig. 2).

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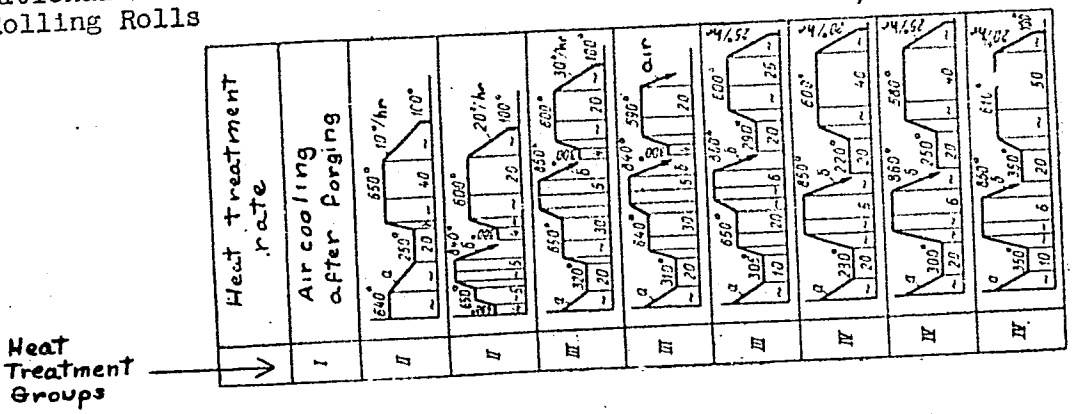

Fig. 2. Experimental rates. Cooling (a) with furnace and (b) in air.

Specimens of different weight were taken from ingots used for the production of rolls. Specimens as well

as rolls were forged with the same degree of reduction. Tensile tests allowed the observations of hardness changes along the cross section of specimens. Flakes were detected by means of magnetic defectoscope. Table 1 shows data relating to weight and chemical composition of specimens.

Key to Table 1: (A) Heat treatment group; (B) ingot weight in tons; (C) specimen weight in tons; (D) contents of elements in %.

(A)	(B)	(C)	(D)		
			C	Mn	Cr
I	42	6,2	0,56	0,54	1,20
II	42	6,4	0,57	0,37	1,12
II	42	6,4	0,57	0,37	1,12
III	32	7,5	0,52	0,54	1,17
III	32	7,3	0,52	0,54	1,17
III	36	36	0,56	0,54	1,20
IV	42	6,4	0,57	0,37	1,12
IV	42	7,8	0,56	0,54	1,20
IV	32	8,2	0,56	0,55	1,33

Note: Si--0.26 to 0.32%; S--0.020 to 0.33%; P--0.016 to 0.025%.

Rational Heat Treatment Rates for Hot Rolling Rolls

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SOV/129-60-2-9/13

For a complete analysis of test results, the authors calculated the amount of H escaping from a forging with 1,000 mm diam at various temperatures of isothermal holding. The period during which H escaped was calculated according to a formula by N. M. Chuyko (see Ref 1 Stal', 1951, Nr 3). The authors estimated that 100 g 55Kh-steel contains 8 cm^3 H and maximum 4 cm^3 H after heat treatment. Calculations showed that H is liberated slowly from large forgings during austempering. Most flakes were identified in air-cooled forgings and a minimum number or none in specimens heat-treated according to method IV with the following characteristics:

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Key to Table 2. (a) Heat treatment group; (b) specimens taken from; (c) tensile strength, kg/mm^2; (d) yield point, kg/mm^2; (e) elongation; (f) reduction of area; (g) impact strength, kgm/cm^2; (h) mean, kg/mm^2; (i) number of flakes; (j) surface; (k) 1/3 radius; (l) 2/3 radius; (m) center part.

(a)	(b)	(c)	(d)	(e) %	(f) %	(g)	(h)	(i)
IV	(j)	84,4	41,1	18	26,7	2,6	228—241	75
	(k)	82,1	42,3	16,2	23,4	1,9		
	(l)	83,4	39,7	13,4	24,8	2,1		
	(m)	81,8	39,1	14,2	21	1,9		
	(j)	90,1	42,9	13,5	21,4	2,1	228—252	3
	(k)	84,1	36,8	12,8	21,6	2,3		
	(l)	75,6	39,4	12,3	19,3	2,8		
	(m)	74,8	36,5	10,3	19,8	3,1		

It was found that isothermal holding immediately after forging failed to prevent flake formation. By heating steel after the initial overcooling, flakes have no time to develop. Subsequent overcooling promotes considerable H liberation. The minor amounts of H which remain in the steel do not enhance flake formation. The authors recommend the application of the above heat treatment rates which combine annealing and normalization and reduce the time of heat treatment of large-size forgings by 40%. Hundreds of rolls have already been heat-treated by the above method, and considerable saving was achieved at the plant. There are 4 figures; 2 tables; and 4 Soviet references.

ASSOCIATION: Novo-Kramatorskiy Machine Building Plant (Novo-Kramatorskiy mashinostroitel'nyy zavod)

S/129/60/000/012/003/013
E073/E235

AUTHORS: Braun, M. P., Doctor of Technical Sciences, Professor, Gurzhiyenko, K. F., Kondrashev, A. I., Vinokur, B. V. and Geller, A. L., Engineers

TITLE: Nickel-less Steel for Large Forgings

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No. 12, pp. 16-17

TEXT: The authors developed the constructional steel 30XГBT (30KhGVT) (0.28-0.35% C; 0.17-0.37% Si; 1.0-1.2% Mn; 0.9-1.2% Cr; 0.7-0.9% W; 0.05-0.10% Ti; ≤ 0.030% S and P) the properties of which are at least as good as those of the hitherto used steel 40XH (40KhN). The steel was smelted in a basic arc furnace and was cast into ingots weighing about 15.9 tons. From the ingot specimens were forged, the forgings being of 500 and 700 mm cross-section. To prevent formation of flocculi the forging was subjected to isothermal annealing. Following that, the influence of quenching and tempering on the mechanical properties and the proneness to temper brittleness was investigated. It was found that with increasing quenching temperature, the properties improved and

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the proneness to temper brittleness decreased with an only slight deterioration in the plastic properties. The investigations enabled establishing that for the specimen forgings the following heat treatment is desirable: quenching from 900°C in oil and tempering at 600°C. After heat treatment 130 mm thick discs were cut from the specimens for the purpose of investigating the mechanical properties along the cross-section. For the above heat treatment the steel had the following properties: σ_b = 99 kg/mm^2, σ_s = 89 kg/mm^2, δ = 17%, ϕ = 57%, a_k = 11.3 kgm/cm^2 (cooling in air after tempering) and 12.0 kgm/cm^2 (cooling in water after tempering). It was found that forgings of up to 700 mm cross-section had a sufficiently high hardenability, a high strength and plasticity. The impact strengths and the yield point and strength values did not differ greatly for the two types of steel. For instance, at a distance of 1/3 of the radius from the surface of a 700 mm cross-section forging, σ_s = 60 kg/mm^2 for a_k = 7 kgm/cm^2. Towards the centre of the specimen the yield point dropped to 43 kg/mm^2 whilst the impact strength remained the same. The properties of 500 mm

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S/129/60/000/012/003/013
E073/E235

Nickel-less Steel for Large Forgings

dia forgings were about the same but were more stable throughout the cross-section. The authors recommend using this new steel for large forgings of up to 700 mm cross-section instead of the hitherto used 40KhN steel and for forgings of up to 500 mm cross-sections instead of the hitherto used 35XHM (35KhNM) and 40XHM (40KhNM) steels. There are 4 tables and 7 Soviet references.

ASSOCIATION: Institut liteynogo proizvodstva AN USSR i Novo-Kramatorskiy mashinostroitel'nyy zabod
(Foundry Institute, Academy of Sciences, USSR and Novo-Kramatorsk Machine Building Works)

Card 3/3

KONDRASHEV, A.I.

PHASE I BOOK EXPLOITATION SOV/5511

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.

Metallovedeniye i termicheskaya obrabotka (Physical Metallurgy and Heat Treatment of Metals) Moscow, Mashgiz, 1961. 330 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov UkrSSR. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.

Editorial Board: M. P. Braun, Doctor of Technical Sciences, I. Ya. Dekhtyar, Doctor of Technical Sciences, D. A. Draygor, Doctor of Technical Sciences, I. S. Kamenichnyye, Engineer, Ye. A. Markovskiy, Candidate of Technical Sciences, V. G. Permyakov, Doctor of Technical Sciences, and A. V. Chernovol, Candidate of Technical Sciences; Ed.: M. S. Soroka; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed., Mashgiz (Southern Dept.): V. K. Serdyuk, Engineer.

Card 1/10

PURPOSE: This collection of articles is intended for scientific workers and technical personnel of research institutes, plants, and schools of higher technical education.

COVERAGE: The collection contains papers presented at a convention held in Kiyev on problems of physical metallurgy and methods of the heat treatment of metals applied in the machine industry. Phase transformations in metals and alloys are discussed, and results of investigations conducted to ascertain the effect of heat treatment on the quality of metal are analyzed. The possibility of obtaining metals with given mechanical properties is discussed, as are problems of steel brittleness. The collection includes papers dealing with kinetics of transformation, heat treatment, and properties of cast iron. No personalities are mentioned. Articles are accompanied by references, mostly Soviet.

TABLE OF CONTENTS:

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28867
S/180/61/000/004/004/020
E193/E383

18.1111

AUTHORS: Braun, M.P., Vinokur, B.B., Geller, A.G. and Kondrashev, A.I. (Kiyev)

TITLE: On brittle fracture of alloy steel

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo. no. 4, 1961, pp. 43 - 49

TEXT: Although the Cr-Ni and Cr-Ni-Mo steels have been long established as materials suitable for applications in which resistance to brittle fracture is of primary importance, the search for similar steels of other compositions has been continued owing to economic considerations. Complex, Cr- and Mn-bearing steels have been found promising in this respect but lack of operational experience has prevented their use in the fabrication of components likely to be subjected to complex stresses in service; hence the present investigation whose object was to compare the tendency to fail by brittle fracture of three Cr-Mn and two Cr-Ni steels. The composition of these materials (containing 0.015 - 0.028% S and 0.022 - 0.030% P)

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On brittle fracture of alloy steel E195/E383

is given in Table 1 under the following headings: steel; chemical composition, %. The experimental work consisted of the following: a) tensile tests conducted on special cylindrical test pieces which had a short central portion of a diameter larger (10 mm) than that of the remainder (7 mm), the central portion being provided with a notch varying in depth from specimen to specimen, but having a constant shape and width; b) tensile tests on cylindrical specimens 10 mm in diameter, provided with notches of 5 different types but of the same depth - these specimens are illustrated in Fig. 1; c) static bending tests conducted on standard notched bar test pieces (55 x 10 x 10 mm); d) determination of the ductile-to-brittle transition temperature by impact tests at various temperatures. All the experimental specimens were oil-quenched and tempered at temperatures selected so as to ensure the UTS of approximately 100 kg/mm^2. By water-quenching or furnace-cooling the specimens from the tempering temperature, material in ductile or brittle condition was obtained. The difference between the steels studied can be illustrated by data given in

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On brittle fracture of alloy steel

Table 3, where the effect of variation of the notch shape on various mechanical properties is shown under the following headings: type of steel; number of the specimen in Fig. 1; $\sigma_{B.H.}/\sigma_B$; $\sigma_{Z.H.}/\sigma_Z$; δ_H/δ ; ψ_H/ψ ; $\sigma_{B.H}$, $\sigma_{Z.H.}$, δ_H and ψ_H denote, respectively, the UTS, true tensile strength, elongation, and reduction of area of the notched test pieces, σ_B, σ_Z, δ and ψ denoting the same properties of the unnotched specimen (specimen No. 1 in Fig. 1); each property of a notched specimen is therefore expressed in this table in % of this property of the unnotched test piece. The results of impact tests are reproduced in Fig. 3, where the impact strength (a_k, kgm/cm^2) is plotted against the test temperature (^oC), the four diagrams (from top to bottom) relating to steels 30ХГВТ (30KhGVT), 30ХГВМ (30KhGVM), 30Х2ГМТ (30Kh2GMT), 35ХНМ (35KhNM) and 40ХН (40KhN); the continuous curves relate to material in ductile condition, the brittle and semi-ductile condition being indicated by broken and dotted curves.

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On brittle fracture of alloy steel

respectively. It was concluded that the Cr-Mn steel, containing approximately 0.3% C and additions of other carbide-forming elements, differs little from the Cr-Ni-Mo steels in respect to their tendency to brittle fracture under conditions of stress concentration. Steel 30Kh2GMT is least notch-sensitive; steels 30KhGVT, 30KhGVM and 35KhNM are approximately equal in this respect, steel 40KhN being most sensitive to the action of stress concentration. The effect of the degree of notch sharpness on strength and plasticity of the Cr-Mn steel was found to be similar to that observed in steel 35KhNM; the effect of stress-risers was particularly pronounced in steel 40KhN. It was found also that the notch-sensitivity and tendency to temper-brittleness can be assessed by static bending tests conducted on notched bar test pieces; assessed in this manner, steel 30KhGVM proved to have relatively high tendency to brittle fracture. The results of the impact tests showed that, in respect to the tendency to temper brittleness and the ductile-to-brittle transition temperature, steels 30KhGVT, 30KhGVM and 30Kh2GNT are similar to steel 35 KhNM, steel 40KhN being characterised by a relatively higher tendency to

On brittle fracture of alloy steel

temper brittleness and a higher ductile-to-brittle transition temperature. It was inferred from the results of the present investigation that steels 30KhGVT and 30Kh2GMT can be recommended as substitutes for the Cr-Ni and Cr-Ni-Mo steels in the fabrication of machine components of complex shape, whereby considerable economies in the consumption of nickel and cobalt, which are not easily available, can be attained.
There are 3 figures and 5 tables.

SUBMITTED: October 10, 1960

Card 5/5

26584 S/148/61/000/006/008/013
E111/E480

18 1111

AUTHORS: Braun, M.P., Vinokur, B.B. and Kondrashev, A.I.

TITLE: Influence of niobium on the form of fracture of alloyed structural steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1961, No.6, pp.119-124

TEXT: Numerous investigations into the fracture of steel hardened and then tempered at 500 to 650°C with very rapid or very slow cooling showed that the forms of fracture after impact testing at +300 to -200°C can in the main be classified in five groups. The author used this classification in studying the effect of niobium on the form of fracture in structural chromium-nickel and chromium-manganese-nickel steels. The following compositions were tested

		C	Mn	Si	Cr	Ni	Nb	S	P
Cr—Ni—Nb	B	0,30	0,35	0,13	1,29	1,52	0,33	0,032	0,18
Cr—Ni—Nb	C	0,33	0,40	0,31	1,27	1,57	0,71	0,[illegible]	0,020
Cr—Ni—Nb	K	0,35	0,41	0,27	1,31	1,57	0,90	0,037	0,020
Cr—Ni—Mn—Nb	A	0,36	0,99	0,30	1,01	1,58	0,10	0,018	0,022
Cr—Si—Mn—Nb	B	0,25	1,25	1,07	1,33	0,21	0,09	0,019	0,022

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Influence of niobium on the form ... E111/E480

alloying of the test steels with 0.1% Nb does not affect the fracture; with 0.3 to 0.6% the ductile fracture is preserved to low test temperatures irrespective of the initial state of the steel; with over 0.7%, brittle crystalline fractures are produced. With over 0.9% grains of niobium carbide are visible in the microstructure but these should increase rather than decrease plasticity. Crystal fragments in ductile fractures could be due to enrichment of some crystal planes with carbon and alloying elements. The most surface active elements are probably carbon, silicon, phosphorus and aluminium with respect to austenite, and phosphorus, silica, nickel, manganese and chromium with respect to ferrite. The quantitative calculation of the adsorption effect has been described by M.P.Braun in his book "Izlom i khrupkost' konstruktsionnoy legirovannoy stali" (Fracture and Brittleness of Structural Alloy Steel), Mashgiz, 1960. There are 5 figures, 1 table and 1 Soviet reference.

ASSOCIATION: Institut liteynogo proizvodstva AN UkrSSR i NKMZ im. Stalina (Foundry Production Institute AS UkrSSR and NKMZ imeni Stalin)

BRAUN, M.P.; VINOKUR, B.B.; KONDRASHEV, A.I.; GELLER, A.L.

Chromium-manganese base steel for large forgings. Izv. vys. ucheb. zav.; chern. met. 4 no.8:108-111 '61. (MIRA 14:9)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Chromium-manganese steel)

KONDRASHEV, A.I.; BRAUN, M.P.; GELLER, A.L.; VINOKUR, B.B.

Effect of complex alloying on the secondary order temper brittleness of chromium-manganese steel. Struk.i svois.lit.splav. no.1:102-109 '62. (MIRA 15:5)

(Chromium-manganese steel—Brittleness)

VINOKUR, B.B.; GELLER, A.L.; BRAUN, M.P.; KONDRASHEV, A.I.

Tendency of high-strength steels toward temper brittleness.
Struk.i svois.lit.splav. no.1:116-124 '62. (MIRA 15:5)
(Steel--Brittleness) (Metals, Effect of temperature on)

BRAUN, M.P., doktor tekhn.nauk, prof.; VINOKUR, B.B., inzh.; KONDRASHEV, A.I., inzh.; KOSTYRKO, O.S., inzh.

Principles of the alloying of steel. Metalloved. i term. obr. met. no.5:26-29 My '62. (MIRA 15:5)

1. Kiyevskiy politekhnicheskiy institut.
(Steel alloys--Metallurgy)

S/148/62/000/012/007/008
E193/E383

AUTHORS: Braun, M.P., Vinokur, B.B., Kondrashev, A.I. and Geller, A.L.

TITLE: Search for nickel-free constructional steels

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 12, 1962, 126 - 130

TEXT: Cr-Ni steels, widely used in the heavy machine tool-building industry, although characterized by good hardenability, are prone to temper-brittleness. The standard method of preventing this effect is to alloy the steel with Mo. The object of the present investigation was to find out whether nickel-free steels with properties similar to those of Cr-Ni-Mo steels could be developed. The composition of Ni-free and Ni-bearing steels used in the experiments is given in Table 1. The effect of tempering temperature on the impact strength a_k of the steels in the ductile (i.e. rapidly cooled) and brittle (slowly cooled) condition was studied in the first series of experiments. In this respect, the (Mo + Ti) addition was found to be the most effective. Steel 30Х2ГМТ (30Kh2GMT), tempered at 400 - 500 °C, had $a_k \approx 4$ kgm/cm^2;

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a_k rapidly increased on increasing the tempering temperature, reaching a value of about 21 kgm/cm^2 after tempering at 675 °C; the difference between a_k of this steel in the brittle and ductile condition was negligible for the entire range of tempering temperatures studied. For comparison, a_k of steel 40ХН (40KhN), tempered at 675 °C, was 13 kgm/cm^2 for the ductile and 6.5kgm/cm^2 in the brittle condition. a_k of the steels at sub-zero temperatures was studied in the next series of experiments. The measurements were carried out on specimens hardened and tempered to produce UTS of 100 kg/mm^2; ductile and brittle conditions were attained, respectively, by water-quenching the specimen after tempering and by cooling at 30 °C/h. Here again, the steel 30Kh2GMT gave the best results, its a_k, in the ductile condition at +80, +40, 0, -80 and -160 °C, being, respectively, 19, 17, 14, 10, 8 and 5 kgm/cm^2. The greatest difference between the value of a_k for the ductile and brittle conditions did not exceed 5 kgm/cm^2. Steel 40KhN in the ductile condition had

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a_k = 14 kgm/cm^2 at 80 °C and 2 kgm/cm^2 at -160 °C, the corresponding values for the brittle condition being 7 and 0.5 kgm/cm^2. The relative proneness of the steels studied to brittle fracture is demonstrated in Table 4, showing the values of the "cold-brittleness threshold" defined as the temperature at which a_k of the steel constituted 50% of its value at room temperature. Conclusions: 1) Ni-free (Cr-Mn)-bearing steels with additional alloying elements show little tendency to brittle fracture and in this respect are similar to the Cr-Ni-Mo steel 35ХНМ (35KhNM). The ductility of these two types of steel at sub-zero temperatures is also comparable. 2) The results of studies of the mechanical properties (M.P. Braun et al - Metallovedeniye i termicheskaya obrabotka metallov, 1960, no. 12; Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1961, no. 8) and data on temper-brittleness, notch-sensitivity and ductile-to-brittle transition temperature (Braun et al, Izv. AN SSSR, OTN, 1961, no.4) of the steels 30ХГСВТ (30KhGSVT) and 30Х2МГТ (30Kh2MGT) indicate that these steels can be recommended as construction materials for large parts. There are 2 figures and 4 tables.

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S/148/62/000/012/007/008
E193/E383

Search for ....

ASSOCIATION: Ukrainskaya akademiya sel'skhokhozyaystvennykh nauk (Ukrainian Academy of Agricultural Sciences)

SUBMITTED: April 10, 1962

Table 1:

Type of steel	C	Si	Mn	Cr	Ni	W	Mo	Ti
30KhGVT	0.33	0.42	1.17	1.15	-	0.75	-	0.09
30KhGVM	0.31	0.25	0.05	1.10	-	0.75	0.75	-
30Kh2GMT	0.28	0.32	1.10	1.84	-	-	0.49	0.08
35KhNM	0.37	0.24	0.69	1.65	1.73	-	0.29	-
40KhN	0.39	0.33	0.59	1.25	1.56	-	-	-

Contents of S and P = 0.022 - 0.29%

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Search for ....

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E193/E383

Table 4:

Type of steel	Ductile condition		Brittle condition	
	Cold-brittleness threshold	Temperature interval	Cold-brittleness threshold	Temp. interval
30KhGVT	-75	35	-60	35
30KhGVM	-100	55	-50	50
30Kh2GMT	-90	35	-70	35
35KhNM	-95	35	-85	35
40KhN	-45	90	-20	100

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BRAUN, Mikhail Petrovich; VINOKUR, Bentsikhanovich; KONDRASHEV, Arkadiy Ivanovich; GELLER, Aleksandr L'vovich; FIKSEN, N.V., kand. tekhn. nauk, retsenzent; FURER, P.Ya., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn.red.

[Properties of complex-alloy steel for the manufacture of large-section parts] Svoistva kompleksnolegirovannykh stalei dlia izdelii krupnykh sechenii. Moskva, Mashgiz, 1963. 207 p. (MIRA 16:8)

(Steel alloys—Testing)
(Machinery—Design and construction)

BRAUN, M.P.; VINOKUR, B.B.; KONDRASHEV, A.I.; GELLER, A.L.

Chromium-manganese steel for large forgings. Metalloved. i term. obr. met. no.10:1-9 O '63. (MIRA 16:10)

1. Institut liteynogo proizvodstva AN UkrSSR.

S/129/63/000/003/006/009
E193/E383

AUTHORS: Astaf'yev, A.A., Abramova, V.P., Kondrashev, A.I., and Manuylova, V.P.

TITLE: Combined forging and hardening of large parts

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, no. 3, 1963, 24 - 28

TEXT: The object of the present investigation, conducted by TsNIITMASh in cooperation with the Novo-Kramatorskiy mashinostroitel'nyy zavod (Novo-Kramatorsk Machine-building Works), was to explore the possibility of hardening large forgings of carbon and low-alloy steels by quenching directly after the hot-forging operation. The experiments were conducted on stepped forgings, 300 and 500 mm in diameter, made from basic open-hearth steel 45 and basic steel 40XH (40KhN), smelted in an electric furnace. The blanks were preheated to 1 200 °C. The forging operation lasted 22 - 48 min, the reduction given being 5 and 1.9 for steps of 300 and 500 m in diameter, respectively. The following three variants of hardening treatment were studied: 1 - quenching immediately after the forging operation; 2 - quenching after holding the

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Combined forging ....

forging at 850 °C for 4 hours (steel 45) or 1.5 h (steel 40KhN); 3 - quenching after forging, tempering, reheating and quenching again. Steel 45 forgings were water-quenched (cooling time - 15-20 min); steel 40KhN test pieces were oil-quenched (cooling time 63 - 76 min) and transferred to a tempering furnace when their surface temperature reached 200 °C. Both steels were tempered at 640-660 °C for 20 and 45 hours; experiments were also conducted on steel 40KhN, tempered at 550-570 °C for 25 hours. After tempering the forgings were cooled to 400 °C at a cooling rate of 40 °C/h and then to room temperature at 30 °C/h; the specimens tempered for 45 h were cooled in air. After the heat treatment test pieces were cut from the surface layer, from the region R/3 distant from the surface and from the central region of the forging; these were used for metallographic determination and for determining the mechanical properties of the forging. Typical results obtained for steel 45 forgings are reproduced in Fig. 1, where the UTS (σ_b, kg/mm^2), yield point (σ_s, kg/mm^2) impact strength (a_k, kgm/cm^2), reduction in area (ψ, %) and elongation (δ, %) are plotted against the distance (R, mm) from

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Combined forging ....

the forging surface; curves 1-3 relate to forgings quenched immediately after forging, curves 4 to forgings quenched after 4 h at 850 °C and curves 5 to material quenched after a second reheating (tempering at 640-660 °C); diagrams a and б were constructed for steps 300 and 500 mm in diameter, respectively. Conclusions: 1) in the case of steel 45 forgings up to 500 mm in diameter, quenching immediately after hot forging does not give rise to flaking, irrespective of which part of the ingot is used for producing the forging. The same applies to steel 40KhN forgings of up to 300 mm in diameter. Flaking can, however, occur in steel 40KhN forgings of 500 mm in diameter, made from the top part of the ingot and quenched immediately after forging. 2) The mechanical properties of steel 45 forgings of up to 300 mm in diameter, quenched immediately after hot forging and given a high-temperature tempering, meet the requirements imposed by service conditions. 3) The results of the present investigation provide grounds for recommending that quenching after forging be used as the final heat treatment for medium-carbon steel forgings of up to 300 mm in diameter. In the case of steels 40KhN, 40Х (40Kh), 34ХМ (34KhM), 50Г (50G), 60Г (60G), 40ХНМ (40KhNM) et al quenching immediately

Combined forging ....

after hot forging should be applied as a preliminary heat treatment instead of prolonged annealing which is normally used after forging to prevent flaking. 4) Field trials conducted at the Novo-Kramatorsk Machine-building Works on forgings of up to 400 mm in diameter yielded satisfactory results. There are 3 figures.

ASSOCIATIONS: TsNIITMASh
Novo-Kramatorskiy zavod (Novo-Kramatorsk Works)

L 23263-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(b) JD

ACC NR: AR5000599 S/0137/64/000/008/I065/I065

SOURCE: Ref. zh. Metallurgiya. Sv. t., Abs. 8I413

AUTHOR: Braun, M. P.; Vinokur, B. B.; Kondrashev, A. I.; [illegible] G

TITLE: The problem of the principles of alloying steel

CITED SOURCE: Sb. Legirovaniye staley. Gostekhizdat USSR, 1963,

TOPIC TAGS: alloying, steel, steel alloying, steel hardening, [illegible]ability, metal brittleness, metal grain structure

ABSTRACT: In the works of A. P. Gulyaev [illegible], 1951, 12D3[illegible]) discussion of the effect of alloying on certain properties he proposes to divide steels [illegible] according [illegible] that various steels [illegible] Group [illegible] Gulyaev incorrectly thinks that alloying is basically necessary only for the attainment of the required hardenability.

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L 23363-65

ACCESSION NR: AR5000599

work has been carried out recently which refutes this principle. A. P. Gulyaev's data, especially

molybdenum as

of cold brittleness, in

be improved only when a fine grain structure is

preserved. The grain fineness of the structure has a

effect on brittleness, but

To obtain a fine grain structure, A. P. Gulyaev proposes

to introduce 1 kg aluminum and 3-4 kg titanium

aluminum is obviously

stability of the metal.

and zirconium.

units from

a process has al

marked improvement in hardenability. L. Koblikova

SUB: MM ENCL: 00

L 35069-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(d)/EWP(b) JD

ACCESSION NR: AR5006377 S/0276/64/000/012/G008/G008

17
B

SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya. Svodnyy tom, Abs. 12G58

AUTHOR: Braun, M. P.; Vinokur, B. B.; Kondrashev, A. I.; Kostyrko, O. S.

TITLE: The principles of steel alloying (Comments on the hypotheses of A. P. Gulyayev)

18

CITED SOURCE: Sb. Legirovaniye staley. Kiyev, Gostekhizdat USSR, 1963, 253-260

TOPIC TAGS: steel alloying, steel property

13

TRANSLATION: The authors present a critique of the basic theorems proposed by [illegible] concerning the effects of alloying on some properties of steels. [illegible] L. Koblikova.

SUB CODE: MM ENCL: 00

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KONDRASHEV, A.I., inzh.; KAMALOV, V.Z., inzh.; PILYUSHENKO, V.L., inzh.

Hardening of large-diameter supporting rolls. Mashinostroenie no.4:71-72 Jl-Ag '64. (MIRA 17:10)

KONDRASHINA, A. I.

The Second All-Union Conference on the Preparation and Analysis of High-Purity Elements, held on 24-28 December 1963 at Gorky State University im. N. I. Lobachevskiy, was sponsored by the Institute of Chemistry of the Gorky State University, the Physicochemical and Technological Department for Inorganic Materials of the Academy of Sciences USSR, and the Gorky Section of the All-Union Chemical Society im. D. I. Mendeleyev. The opening address was made by Academician N. M. Zhavoronkov. Some 90 papers were presented, among them the following:

L. S. Vasilevskaya, V. P. Muravenko, and A. I. Kondrashina. Effect of the purity of air, reagents, water, and containers on the spectrochemical determination of impurities in Si, Ge, their inorganic compounds, mineral acids, and water. An increase of one or two orders of magnitude in the sensitivity of determinations was reported.

(Zavod. Anal. Khim 19, No.6, 1964 p. 777-79)

L 56557-65 EWT(d)/EWT(m)/EWP(k)/EWP(z)/EWP(h)/EWP(b)/T/EWA(d)/EWP(l)/EWP(w)/
EWP(v)/EWP(t) Pf-4 MJW/JD

ACCESSION NR: AP5018809 UR/0304/64/000/005/0049/0050 35

AUTHOR: Braun, M. P. (Doctor of technical sciences); Kondrashov, A. I. (Engineer); [illegible], B. B. (Candidate of technical sciences)

TITLE: Use of complex alloyed steels for large induction hardened products

SOURCE: Mashinostroyeniye, no. 5, 1964, 49-50

TOPIC TAGS: alloy steel, induction hardening, metal hardness, metal fatigue, metal deformation, annealing, mechanical engineering

ABSTRACT: The Institute of Foundry Problems of the Academy of Sciences [illegible] SSR and the Novo-Kramatorsk Machine Building Plant conducted [illegible] induction hardening of [illegible]. An installation was mounted on a type [illegible] operating at a frequency of 3,000 cps [illegible] the [illegible]. Research established that at 320 amps and 100 kw, with a feed rate of 2.5 meters per minute and sample angular velocity of 52 rpm, a heating temperature of 1,050°C is obtained. At this temperature, the depth of the hardened [illegible] 30KhGVT is 6.9 mm with a hardness of 56 [illegible]. In another series of research, using the very same current parameters, a [illegible] feed rate

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ACCESSION NR: AP5018809

increased to 3.75 m/min and the angular velocity to 91 rpm. In this case, the heating temperature was 970°C, and the depth of the hardened layer was [illegible] mm. The hardness of the hardened layer was Rc 50.

[illegible] further increase in speed of movement of the inductor to [illegible] m/min [illegible] at velocity of 112 rpm dropped the [illegible] [illegible] was up to 1 mm and hardness [illegible] power to 90 kw at 350 [illegible] [illegible] [illegible] speed [illegible] lowering of the temperature of heating and decreased

Wholly similar results were obtained in studying samples of 30Kh2GMT steel, with the exception that, in all cases, the hardness of this steel was somewhat higher than in 30KhGVT steel.

It should be noted that induction heating of samples of 40KhN chromium nickel steel, regardless of the higher content of carbon, gives the same [illegible] as in 30Kh2GMT steel. To study the influence of annealing on the [illegible] of the induction hardened layer [illegible] were annealed at 200-600°C for 1-15 hours, and at 650°C for 20 minutes to 15 hours. The 15-hour period was selected on the basis of industrial data showing that most products are subjected to a 15-hour annealing period after induction heating.

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L 50557-65

ACCESSION NR: AP5018809

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It was found that annealing of 30KhGVT steel at 200-250°C does not change the hardness of the hardened layer (Rc 45) even after a 15-hour anneal. [illegible] annealing at 300°C leads to a decrease in hardness [illegible] units. When [illegible] within the range of 350-600°C, the change of hardness in relation [illegible] time was approximately the same for all steels, [illegible] exception [illegible] only in the degree of softening. Annealing at 600°C leads to [illegible] softening -- within 20 minutes, the hardness drops to Rc 41, [illegible] lower value, and, within 1.5 hours, it is already equivalent to the hardness of the inside layers.

A determination was made of the thermal fatigue of complex alloyed steels and steels alloyed with nickel. The samples were water quenched after induction heating. In samples of 30KhGVT and 30Kh2GMF steels, no cracks were [illegible] after heating and quenching 10 times. However, for the 40KhN steel [illegible] cracks were detected right after the second heating [illegible] quenching. In [illegible] enough heating (in a furnace) and quenching of samples of 30KhGVT and 30Kh2GMT steels, cracks appeared after [illegible] tests. Samples of [illegible] had cracks after the second quench and 35KhGM steel samples had [illegible] after the fourth quench.

A study of the tendency of steels to deform (warp) during induction hardening, made on rods 1,700 mm long and 150 mm in diameter, showed that after

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ACCESSION NR: AP5013809

hardening as per the above-mentioned sequence, rods of non-nickel steels had warped 1.5 mm, and those of 40KhN steel more than 10 mm.

The results of this research showed the possibility of using non-nickel steels for induction-hardened articles.

The experiments proved the feasibility of utilizing complex alloyed steels for large induction-hardened parts.

[illegible]

SUBMITTED: 00 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 000 OTHER: 000 JPRS

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L 30042-65 ENT(m)/EWP(w)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(b) Pu-4 IJP(c) MJW/JD/JG

ACCESSION NR: AP5003934 S/0304/65/000/001/0052/0053

AUTHORS: Braynin, I. Ye. (Doctor of technical sciences); Kharchenko, V. A. (Candidate of technical sciences); Kondrashev, A. I. (Engineer); Yagupkin, V. P. (Engineer)

TITLE: Effects of additional alloying on the mechanical properties of low-carbon [illegible] steels

SOURCE: Mashinostroyeniye, no. 1, 1965, 52-53

TOPIC TAGS: steel, chromium steel, manganese steel/ 15KhGL steel, 15KhGFL steel

ABSTRACT: To find nickel-free cast steels with high impact strength, the effect of additional alloying on the mechanical properties of low-carbon Cr-Mn steels was investigated. The alloys were melted in a 30-kg induction furnace and specimens from the ingot periphery were annealed at 900-920C for 4 hours, while the specimens from the top and bottom parts of the ingot were normalized and tempered at 600C for 4 hours. The alloy compositions are shown in Table 1 and the mechanical properties in Table 2 on the Enclosures. It was found that alloying steel 15KhGL with Mo, V, Cu, Ti has no effect on strength and ductility and decreases the impact strength; Mo increases all properties; V and Ti increase strength but significantly decrease

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ACCESSION NR: AP5003934

ductility and impact strength. Small additions of Zr significantly increase ductility and impact strength. Orig. art. has: 2 tables.

SUBMITTED: 00 ENCL: 02 SUB CODE: MM

OTHER: 00

Table 1.

Chemical composition of steels, %

Designation	C	Mn	Si	S	P	Cr	Mo	Ti	V	Cu	Nb	Zr
15KhGL	0,17	1,00	0,32	0,039	0,018	1,10	—	—	—	—	—	—
[illegible]	0,16	0,94	0,21	0,031	0,016	1,28	—	—	0,18	—	—	—
15KhGML	0,16	0,74	0,06	0,051	0,027	1,05	0,27	—	—	—	—	—
[illegible]	0,17	1,04	0,23	0,036	0,042	1,14	—		—	0,78	—	—
[illegible]	0,14	0,95	0,14	0,035	0,018	1,06	—		—	—	0,041	—
[illegible]	0,18	0,87	0,21	0,052	0,011	0,14	—	0,05	—	—	—	—
[illegible]	0,16	1,06	0,20	0,032	0,013	1,09	—	0,10	—	—	—	—
[illegible]	0,18	1,14	0,10	0,034	0,026	—	—	—	0,13	—	—	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15KhGMDL	0,15	2,30	0,19	0,033	0,018	—	—	—	—	—	—	—
15KhG2L	0,16	1,55	0,42	0,025	0,069	1,10	—	0,02	—	—	—	—
[illegible]	0,16	1,82	0,15	0,011	0,028	0,95	—		—	—	—	0,06
[illegible]	0,23	0,96	0,29	0,041	0,007	1,09			—	—	—	—
[illegible]	0,19	0,72	0,35	0,031	0,017	1,14	—	—	—	—	—	Trace
[illegible]	0,20	0,95	0,25	0,036	0,019	1,04	—	—	—	—	—	—

[illegible] alshmetal" with 0.15-0.20% Ce was introduced

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ACCESSION NR: AP5003934 ENCLOSURE: 02

Table 2. Mechanical properties of experimental steels after heat-treating and normalizing

	After heat treating						After normalizing and tempering					
	KG/mm^2	KG/mm^2	%	%	KGM/cm^2		KG/mm^2	KG/mm^2			KGM/cm^2	HB
	48,7	62,3	21,2	62,3	13,4	196	31.0	53,0	31,0	64,3	13,3	143
	48,0	62,4	18,4	58,2	8,1	196	41,8	59.2	25,6	66.0	12,1	170
15KhGBL	50,0	62,8	21,2	61,0	8,2	196	41,5	57,7	25,4	60,8	9,2	163
	29,0	43,0	27,0	58,6	6,2	140	32,3	45,6	34.4	69.3	9,3	131
	47.7	61,0	20,0	41,6	5,8	192	35.0	53,2			6,4	149
	50.3	83,3	21.0	49.7		196						

VINOKUR, B.B., kand. tekhn. nauk; BRAUN, M.P., doktor tekhn. nauk; KONDRASHEV, A.I., inzh.

Inefficiency of the use of boron steel for large articles. Mashinostroenie no.2:65-67 Mr-Ap '65. (MIRA 18:6)

L 00683-66 EPF(c)/EWT(1)/EWT(m)/EWP(b)/T/EWP(t) IJP(c) GG/JD

ACCESSION NR: AP5012578 UR/0181/65/007/005/1559/1561

AUTHOR: Kondrashev, A. I.; Petrov, N. N.

TITLE: Emission of electrons when single crystals of alkali-halide compounds are bombarded with slow helium and argon ions

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1559-1561

TOPIC TAGS: electron emission, alkali halide, ion bombardment, helium, argon, field emission, forbidden band

ABSTRACT: Inasmuch as there are no published data on emission from dielectrics bombarded with inert-gas ions, and the opinion has even been expressed that field emission from dielectrics is impossible, the authors investigated the secondary emission produced when single-crystal plates of LiF, NaCl, KBr, and CsI are bombarded with ions of helium and argon with energy from 20 to 600 eV. The ion current was ~ 10^{10} A. To eliminate the charge, the bombarded samples were heated to 400C and above. The results show that even at low kinetic energies of the helium ions, appreciable electron emission from the targets was observed, the largest being from KBr crystals (with increasing energy the emission increased from 0.45 to 1.8 electrons per incident ion). A correlation is observed between the emission and the width of the forbidden band of the bombarded materials, the latter being

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DENISOV, V.A., kand. tekhn. nauk; MANAKIN, A.M., kand. tekhn. nauk;
KOSTENETSKIY, S.V., inzh.; KONDRASHEV, A.I., inzh.;
MAKSIMENKO, G.A., inzh.; DEMENT'YEV, M.F., inzh.

Cooling steel anvil molds after their filling and the subsequent heat treatment of the castings. Lit. proizv. no.12:19-21 D '65.
(MIRA 18:12)

KONDRASHEV, A.I.; PETROV, N.N.

Electron emission in the bombarding of single crystals of alkali halide compounds by slow helium and argon ions. Fiz. tver. tela 7 no.5:1559-1561 My '65. (MIRA 18:5)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.

BRAYNIN, I.Ye., doktor tekhn. nauk; KHARCHENKO, V.A., kand. tekhn. nauk; KONDRASHEV, A.I., inzh.; GASHUTIN, V.P., inzh.; PILYUSHENKO, V.L., inzh.

Effect of additional alloying on engineering properties of cast low-carbon chromium manganese steels. Mashinostroenie no.1:52-53 Ja-F '65. (MIRA 18:4)

L 28358-66 EWT(m)

ACC NR: AP6001694 SOURCE CODE: UR/0089/65/019/005/0444/0445

AUTHOR: Broder, D. L.; Kondrashov, A. P.; Kudryavtseva, A. V. 29 B

ORG: None

TITLE: Some methods for reducing penetrating secondary gamma fluxes 19

SOURCE: Atomnaya energiya, v. 19, no. 5, 1965, 444-445

TOPIC TAGS: gamma flux, secondary emission

ABSTRACT: An abbreviated version of the original paper is presented. It was mentioned that experimental devices simulating the nuclear reactor cores and shields were used for studying secondary gamma radiations. The experimental model was made of either mixed layers composed of steel and hydrogenous materials or of monolithic blocks. In order to reduce secondary gamma fluxes, it was recommended that neutron absorbing agents (boron carbides, etc.) be added to thermal shielding and a similar absorbing layer be interposed between the vessel and hydrogenous shielding. The capture gamma radiation can also be diminished by a lead layer adjoining the vessel. The investigations showed that the lead (60 mm thick), boron carbide and boron steel (containing 2 to 3 pct of boron) are good materials for diminishing the capture gamma-ray yield. It was 2

Card 1/2 UDC: 539.121.73:539.122

L 28358-66

ACC NR: AP6001694

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also proven that the gamma-attenuation coefficient decreased with the increase of shielding thickness up to four free-path lengths. The factor changed very little with further increase in thickness.

SUB CODE: 20 / SUBM DATE: 26Oct64 / ORIG REF: 000 / OTH REF: 000

Card 2/2 cc

KONDRASHEV, D.

20082

USSR/State Budget 4903., 4902.0211 Oct 1947

"Planning Income of the State Budget From Industry," D. Kondrashev, 7 pp

"Sov Finansy" Vol VIII, No 10

Analysis of methods to be used in estimating income from industry for budgetary purposes. Discusses two possible budgetary methods: direct calculation and method of coefficients. Method to be determined by conditions at plant involved. Gives illustrations and sample problems worked out. Favors use of more complicated coefficient method.

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Organizatsiya gosudarstvennogo narodnokhozyaystvennogo planirovaniya v SSSR (Organization of state national economic planning in the USSR) Moskva, Vysshey Partiynoy Shkoly pri TsK KPSS, 1955.
33 p.
At head of title: Vysshaya Partiynaya Shkola pri TsK KPSS.

[redacted], D. D.

Price determination in U.S.S.R. industry. Den. i kred. 13
no. 1:16-23 Ja '55. (MLRA 8:2)
(Prices)

KONDRASHEV, DENIS DMITRIYEVICH

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.K8

TSENOOBRAZOVANIYE V PROMYSHLENNOSTI SSR (PRICE FORMATION IN USSR INDUSTRY)

MOSKVA, GOSFINIZDAT, 1956.

175 P. TABLES.

BIBLIOGRAPHICAL FOOTNOTES.

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Value and price in the socialistic society. Vop.ekon. no.5:70-75 My '57. (MLRA 10:7)

(Prices) (Value)

PAVLOV, Petr Mikhaylovich, doktor ekon.nauk; KONDRASHEV, D., otv. red.; LOGOVINSKAYA, R., red. izd-va; LEBEDEV, A., tekhn.red.

[Ways for decreasing construction costs] Rezervy snizheniia stoimosti stroitel'stva. Moskva, Gosfinizdat, 1958. 87 p.
(Construction industry--Costs) (MIRA 11:12)

ZABELIN, Boris Mikhailovich; ORLOV, N.A., prof., retsenzent; KONDRASHEV, D.D., kand.ekon.nauk, red.; SALYANSKIY, A.A., red. izd-va; EL'KIND, V.D., tekhn.red.

[Specialization and cooperation in machinery manufacturing in the U.S.S.R.; a follow up on materials on railroad-car construction and other branches] Spetsializatsiia i kooperirovanie v mashinostroenii SSSR; po materialam vagonostroeniia i drugikh otraslei. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1958. 146 p. (MIRA 12:1)

(Machinery industry)